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(54) Title: SHAVING CREAM FORMULATIONS

(57) Abstract: A shaving cream formulation comprising an anionic surfactant. The formulation may also include an antiseptic. Because these formulations soften the hair, they are soothing, non-irritating , prevent ingrown hairs and provide for greater shaving comfort that conventional shaving creams.

SHAVING CREAM FORMULATIONS

Background of the Invention

Field of the Invention

The invention relates to shaving cream formulations. More specifically, the invention relates to cationic shaving cream formulations comprising a separate antiseptic component.

Description of the Related Art

Currently used shaving creams are primarily anionic and stiffen or harden the hair. This often results in irritation to the skin during and after shaving, and may result in ingrown hairs and pimpling of the skin. Thus, there is a need for shaving creams which soften, rather than harden, hair and soothe the skin, resulting in significantly less irritation and a smoother shave. The invention addresses this need.

Summary of the Invention

A shaving cream formulation comprising a cationic surfactant and a separate antiseptic component. Preferably, the cationic surfactant is a quaternary ammonium compound and, more preferably, is selected from the group consisting of cetrimonium chloride, benzalkonium chloride, behenyltrimonium chloride, cetyltrimethylammonium chloride, behenyltrimethylammonium chloride, cetylpyridinium chloride, tetramethylammonium chloride, tetraethylammonium chloride, octyltrimethylammonium chloride, dodecyltrimethylammonium chloride, hexadecyltrimethylammonium chloride, octyldimethylbenzylammonium chloride, decyldimethylbenzylammonium chloride, stearyldimethylbenzylammonium chloride, didodecyldimethylammonium chloride, dioctadecyldimethylammonium chloride, tallowtrimethylammonium chloride, cocotrimethylammonium chloride, the corresponding hydroxides thereof, Quaternium-5, Quaternium-31 and Quaternium-18. The antiseptic component preferably is selected from the group consisting of oil of *Melaleuca alternifolia* and oil *Lavandula* angustifolia. The shaving cream formulation may also, preferably, comprise one or more agents selected from the group consisting of biological additive, neutral surfactant, emulsifying agent, opacifying agent, moisturizer, humectant, emollient, film forming agent, chelating agent, skin conditioning agent, pH adjuster, preservative, antioxidant, coloring agent, viscosity enhancing agent and fragrance. The sharing cream formulation also, preferably, does not comprise an anionic surfactant. The sharing cream formulation preferably contains the cationic surfactant at about 5% to about 15%, or to about 10%, by weight.

These formulation may be used as part of a method of shaving, comprising the steps of topically applying a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin and shaving the skin upon which the shaving cream formulation is applied.. The formulation may also be used as part of a method of shaving, comprising the steps of identifying an individual afflicted with or likely to be afflicted with acne, eczema, ingrown hairs (folliculitis) or otherwise sensitive skin, topically applying a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin, and shaving the skin upon which the shaving cream formulation is applied. The skin may be facial skin, leg skin, or underarm skin

Detailed Description of the Preferred Embodiments

The invention provides shaving cream formulations for topical application to the skin prior to shaving. In contrast to currently available anionic shaving cream formulations which are formulated to harden or stiffen the hair to be shaved, and typically do not contain a separate antiseptic component, the present cationic shaving formulations soften the hair and thus are gentle, non-irritating and significantly reduce the occurrence of ingrown hairs and other sources of infection and dermal irritation. The formulations also comprise a separate antiseptic agent which heals shaving cuts; prevents rashes, burns and irritation; and prevents and treats acne and eczema. Such acne and eczema are particularly associated with facial skin of adolescent males, who are often only beginning to shave their facial hair. Such acne and eczema are also particularly associated with body skin, especially leg and underarm skin of adolescent females, who are often only beginning to shave their body, especially leg and underarm hair.

The compositions of the invention provide better shaving comfort, a smoother shave and have moisturizing properties in contrast to standard, currently available shaving creams. Such currently available shaving creams tend to dry the skin.

Preferably, the shaving cream formulations of the invention are applied directly to the skin prior to, or less preferably during, shaving. The quantity applied will vary depending on the amount, density, and hardness of the hair to be removed, and the personal preference of the user.

In a preferred embodiment of the invention, the formulations comprise one or more, or combinations thereof, cosmetically acceptable cationic surfactants. In a preferred embodiment, the cationic surfactant is a quaternary ammonium hydroxide or salt thereof (for example and preferably, the chloride salts of the quaternary ammonium). Suitable cationic surfactants for use in the shaving cream formulations of the invention include cetrimonium chloride, cetyltrimethylammonium chloride, behenyltrimethylammonium chloride, cetylpyridinium chloride, tetramethylammonium chloride, tetraethylammonium chloride, octyltrimethylammonium chloride, dodecyltrimethylammonium chloride, hexadecyltrimethylammonium chloride, octyldimethylbenzylammonium chloride, decyldimethylbenzylammonium chloride, stearyldimethylbenzylammonium chloride, didodecyldimethylammonium chloride, dioctadecyldimethylammonium chloride, tallowtrimethylammonium chloride, cocotrimethylammonium chloride, and the corresponding hydroxides thereof. Further suitable cationic surfactants include those materials having the CTFA (the International Cosmetic Ingredients Dictionary) designations Quaternium-5, Quaternium-31 and Quaternium-18. Mixtures of any of the foregoing materials are also suitable for use in the invention.

In a preferred embodiment, the cationic surfactant is present in an amount between about 5% by weight and about 25% by weight, and more preferably between about 5% wt and about 15% wt, and most preferably between about 5% wt and about 10% wt. The cationic surfactant is also preferably present in an amount of about 6%, about 7%, about 8%, about 9%, about 10%, about 11%, about 12%, about 13%, or about 14% by weight.

The topical formulations described herein further comprise one or more antiseptic agents to promote healing of cuts which occur while shaving, and for preventing ingrown hairs and irritation. The antiseptic is beneficial for individuals with, or likely to be afflicted with, acne. Currently available shaving cream compositions do not

incorporate antiseptics as distinct components from the cationic surfactants. Rather, so-called aftershave formulations are typically formulated for use as antiseptics after shaving, and contain relatively high concentrations of antiseptic agents such as alcohol. The present formulations are thus more convenient than the conventional shaving cream/antiseptic aftershave combination because the present formulations obviate the need to apply aftershaves to soothe topical irritation which occurs during shaving.

In a preferred embodiment, the antiseptic is a biological additive (for example, a botanical or herbal) having antiseptic properties, particularly oil of *Melaleuca alternifolia* (tea tree oil) and/or oil of *Lavandula Angustifolia*, although other standard antiseptic agents well known to one of ordinary skill in the art (for example, isopropyl alcohol and triclosan) may also be used.

Tea tree oil is particularly preferred due to its particular antiseptic, anti-inflammatory and antifungal properties. The preferred shaving cream formulations of the invention are particularly useful for preventing and treating ingrown hairs (folliculitis), treating cuts which occur while shaving, and treating and preventing acne. The combination of cationic surfactant and tea tree oil is particularly beneficial to individuals with acne because the softening action of the cationic surfactant in combination with the tea tree oil, optionally in combination with moisturizers and emollients, soothes and protects the skin, and prevents worsening of the condition which may occur when shaving with anionic shaving creams due to the irritation associated with the bristling effect of these compositions in combination with passing a razor over areas of the skin affected with acne. Tea tree oil is also preferable to standard acne medications such as benzoyl peroxide because, unlike these compounds, tea tree oil does not dry or irritate the skin, and cleans much more deeply than benzoyl peroxide which works only at the surface of the skin. Thus, the use of topical acne medications while shaving with anionic shaving creams is extremely irritating to acne. The present shaving cream compositions are more preferable, and satisfy the long-felt need for conditioning shaving formulations, due in part to the combination of separate, effective, cationic surfactant and antiseptic components.

Alternatively, other additives, especially biological additives, may also be incorporated into the shaving cream formulations. Such additives may enhance the stability of, enhance or otherwise alter the texture of, or enhance or otherwise alter the odor of the formulation.

As used herein, the term "biological additive" indicates any compound obtained from a natural source, including plants, animals, bacteria and yeast, which has a medicinal or otherwise beneficial effect when topically applied to the skin. Examples of biological additives include oil of *Melaleuca alternifolia*, oil of *Lavandula angustifolia*, *Carica papaya* extract, *Echinacea angustifolia* extract, *Mimosa tenuiflora* extract, *Hydrocotyl (centella) asiatica* extract, gingko biloba extract, oil of *Melaleuca alternifolia* (tea tree oil), *Matricaria chamomila* (chamomile) extract, *Hypericum perforatum* extract, *Aloe barbedensis* extract, and the like. The biological sources for "biological additive" may also include, but are not limited to the following: Aloe Vera, Aloe Barbedensis; Arnica, Arnica Montana; Bladderwrack (seaweed), Fucus Vesciculosis; Birch, Betula Alba (Pendula); Chamomile, Matricaria Chamomila (Chamomila Recutita); Marsh Mallow, Althea Officinalis; Meadow Sweet, Spirea Ulmaria (Filipendula); Mint/Lemon

Balm, Melissa Officinalis; Mimosa, Mimosa Tenuiflora; Myrrh Tincture, Commiphor Myrrha; Neem, Melia Azadirachta; Nettle (stinging), Urtica Dioica; Papaya, Carica Papaya; Propolis (bee glue), Propolis Cera; Raspberry, Rubis Idaeus; Red Poppy, Papaver Rhoeas; Rose Hip (dog rose), Rosa Carima; Rosemary, Rosemarinus Officinalis; Sage, Salvia Officinalis; St. Johns Wort, Hypericum Perforatum; Strawberry, Fragaria Vesca; Thea Sinensis (green tea), Camelia Sinensis; Walnut, Juglans Regia; Witchhazel (dist/extr), Hamamelis Virginiana; Yarrow, Achillea Millefolium; Wild Yam, Dioscorea Villosa; Hawthorn, Crataegus Monogina/Oxyantha; Herma (black/rod), Lawsoma Ehemus; Hops, Humulus Lupulus; Horse Chestnut, Aesculus Hippocastanum; Horse Tail, Equisitum Arvense; Ivy, Hedera Helix; Linden/Lime Tree Blossoms, Tilia Argentea Cordata; Madder, Rubia Tinctorum; Marigold, Calendula Officinalis; Centella Asiatica, Centella Asiatica Urban (hydrocotyl Asiatica); Carrot (roots), Daucus Carota; Comfrey (Allantoine), Symphytum Officinale; Coneflower (Echinacea), Echinacea Angustifolia; Cucumber, Cucumis Sativus (Frucus Cucumis); Fenugreek, Trigonella Foenum Greacum; Gingko, Gingko Biloba; Ginseng, Panax Ginseng; Great Burdock, Radix Bardanea/Arctium Lappa; Tea Tree Oil, Oil of Melaleuca Alternifolia; Colts Foot, Tussilago Farfara; Clover, Trifolium Pratense; Speedwell, Veronica Officinalis.

Further biological additives, along with the biological or medicinal properties of the biological additives described herein and of other known biological additives are know to those of skill in the art. References, including encyclopedias and treatises, known to those of skill in the art, that described such biological additives, along with the biological or medicinal properties of the biological additives described herein, include: Guenther - The Essential Oils, Van Nostrand; Int. Cosmetic Ingredient Dictionary, Vol 1 & 2, C.T.F.A. 1995; Int. Cosmetic Ingredient Handbook, C.T.F.A. 1995; British Herbal Pharmacopoeia, British Herbal Medicine Assoc., 1983; Clinical Applications of Ayurvedic & Chinese Herbs, K. Bone, Phytotherapy Press, 1996; A Handbook of Chinese Healing Herbs, D. Reed, Shambala, Boston, 1995; Echinacea - Nature's Immune Enhancer, S. Foster, Healing Arts Press, Rochester, 1991; Encyclopedia of Herbs, D. Brown, RD Press, 1995; Encyclopedia of Medicinal Plants, A. Chevalier, Dorling Kingers Ley, 1996; L'Angelica - Herbal Extracts; Cosmetochem - Herbasol Extracts.

The shaving cream compositions described herein may be formulated for topical application using methods well known in the cosmetic arts. These formulations may additionally comprise one or more emulsifying agents (e.g. cetyl alcohol, myristyl alcohol, polysorbate-60, cetomacrogol), humectants/moisturizers (for example, glycerin, glycerol, sorbitol and other polyols), skin conditioning agents (for example, triethanolamine, lactic acid, propylene glycol, sweet almond oil, apricot kernel oil), nonionic surfactants (for example, coco betaine, lauryl pyrrolidone, ceteth-20, ethoxylated and propoxylated alcohols, sorbitan laurate, sorbitan palmitate, sorbitan stearate, sorbitan oleate, polysorbate 60), colorants such as staining dyes and pigments (for example, calcium, barium and aluminum lakes, iron oxides, titanium dioxide and mica), antioxidants (for example, tocopherols, retinoids, ascorbyl palmitate, thiodipropionic acid), viscosity-enhancing agents (for example, cetearyl alcohol, polyethylene glycol Myristyl, Cetyl alcohol), opacifying agents (for example, titanium dioxide, ethylglycol monostearate), film forming agents (for example, polyvinylpyrrolidone), emollients (for example, cetearyl octanoate, laneth-40, paraffin liquid, polysorbate-60), skin conditioning agents (for example, propylene glycol, sweet almond oil), biological additives (for example, botanicals and

herbals), germicides (for example, antibiotics, Triclosan), anesthetics (for example, benzyl alcohol, benzocaine), chelating agents (for example, EDTA, EGTA), hydrotropes (for example, urea, triethanol lactate/sodium lactate, sorbitol, glycerin, propylene glycol), pH adjusters (for example, lactic acid, citric acid, sodium bicarbonate), preservatives (for example, methylparaben, ethylparaben, propylparaben, butylparaben, phenoxyethanol octhilinone, BHA, BHT), paraffin and fragrances (for example, strawberry extract, mangifera indica). It will be appreciated by those of skill in the art that particular compounds may be properly classified in one, two or more of the above-listed classifications or compound types.

In a preferred embodiment, one or more skin conditioning agent(s) is present in the formulation in a combined amount of from about 1% to 5% by weight, more preferably from about 1%, about 2%, about 3%, or about 4% by weight.

In a preferred embodiment, one or more emollients is present in the formulation in a combined amount of from about 1% to 10% by weight, more preferably about 3% to 8% by weight, and most preferably about 4%, about 5%, about 6% or about 7% by weight.

One or more nonionic or anionic surfactants is preferably present in the formulations in an amount from about 5% to 15% by weight, preferably about 8% to 12%, including about 9%, about 10%, and about 11% by weight.

In another preferred embodiment, one or more moisturizers/humectants may be present in the formulation in an amount from about 1% to 10% by weight, more preferably about 5%, about 6%, or about 8% by weight.

One or more emulsifying agents, may also be present in a combined amount of between about 1% and about 15% by weight, more preferably between about 5% and about 12% by weight.

One or more preservatives may be present in a combined amount of between about 0.1% and 5% by weight, and most preferably about 0.5% by weight.

One or more opacifying agents may also be present in a combined amount of between about 0.5% and 5% by weight, more preferably between about 1% and 3% by weight.

In another preferred embodiment, one or more biological additives may be present in the formulation in an amount from about 1% to 5% by weight, more preferably about 2.5% by weight.

One or more film forming agents may also be present in a combined amount of between about 0.5% and 2% by weight, more preferably about 1% by weight.

In another preferred embodiment, one or more chelating agents may be present in the formulation in an amount from about 0.1% to 0.5% by weight, more preferably about 0.25% by weight.

In another preferred embodiment, one or more hydrotropes may be present in the formulation in an amount from about 1% to 10% by weight, more preferably about 5% by weight.

EXAMPLES

The following examples are illustrative, but not limiting, of the shaving cream formulations of the invention.

EXAMPLE 1

A preferred shaving cream formulation was prepared. The components of this formulation, and their respective percentages, by weight, are listed in Table 1. As noted above, many of the components of the formulation, as listed in Table 1, are not necessarily elements of the formulation of the invention. Only as recited in the claims, or as explicitly recited in the written description, are particular components necessary components of the formulation of the invention.

TABLE 1

Cationic Shaving Cream Formulation

COMPOUND	APPROX. WEIGHT %	TYPE OF COMPOUND
de-ionized water	44.5	solvent
coco amido betaine	8	surfactant
cetyl alcohol	7	emulsifying agent
titanium dioxide	2	opacifying agent
sorbitol	5	moisturizer/humectant
polysorbate-60	2	emulsifying agent
cetrimonium chloride	7	cationic surfactant
urea	5	hydrotrope
cetearyl octanoate	2	emollient
laneth-40	2.5	emollient
oil of *Melaleuca Alternifolia* (tea tree oil)	1	biological additive
oil of *Lavandula Angustifolia* (Lavender oil)	1	biological additive
lauryl pyrrolidone	1.5	surfactant
polyvinylpyrrolidone	1	film forming agent
sodium EDTA	0.2	chelating agent
triethanolamine	1	skin conditioning agent
lactic acid	0.2	pH adjuster, skin conditioning agent
phenoxyethanol and methyl/ethyl/propyl/butyl parabens	0.3	preservative

Cetyl alcohol, polysorbate-60, cetearyl octanoate, laneth-40, lauryl pyrrolidone and polyvinylpyrrolidone were mixed and heated to 65-70°C. To this mixture was added the cetrimonium chloride and half of the deionized water (70°C), followed by mixing until all of the ethanol was evaporated. To the resulting mixture was added the remaining

half of the deionized water (cold), EDTA, sorbitol, urea titanium dioxide, coco amido betaine, triethanolamine and lactic acid. The cold deionized water, sorbitol and EDTA were premixed, as were the triethanolamine and lactic acid. Phenoxyethanol and methyl/ethyl/propyl/butyl parabens were then added to the mixture, which was cooled to 40°C, followed by addition of the tea tree and lavender oils.

EXAMPLE 2

Another preferred shaving cream formulation was prepared having the following composition:

TABLE 2

Cationic Shaving Cream Formulation

COMPOUND	APPROX. WEIGHT %	TYPE OF COMPOUND
Cetomacrogol	2	nonionic emulsifier
myristyl alcohol	8	emulsifying agent
polysorbate 60	2	nonionic emulsifier
laneth-40	2.5	emollient
paraffin soft white	2	vaseline
cetearyl octanoate	2	emollient
benzyl alcohol	1	mild anesthetic
cetrimonium chloride	7	cationic surfactant
deionized water	50	solvent
sorbitol	5	moisturizer/humectant
EDTA	0.2	chelating agent
urea	5	hydrotrope
titanium dioxide	2	opacifying agent
coco amido betaine	8	surfactant
triethanolamine	1	skin conditioning agent
lactic acid	0.2	skin conditioning agent
phenonid	0.4	preservative
oil of *Melaleuca Alternifolia* (tea tree oil)	1	biological additive
oil of *Lavandula Angustifolia* (lavender oil)	1.5	biological additive

The first seven compounds listed in Table 2 were mixed and heated to 65-70°C. To this mixture was added the cetrimonium chloride and half of the deionized water (70°C), followed by mixing until all of the ethanol was evaporated. To the resulting mixture was added the remaining half of the deionized water (cold), EDTA, sorbitol, urea titanium dioxide, coco amido betaine, triethanolamine and lactic acid. The cold deionized water, sorbitol and EDTA were premixed, as were the triethanolamine and lactic acid. Phenonid was then added to the mixture, which was cooled to 40°C, followed by addition of the tea tree and lavender oils.

Although the foregoing invention has been described in detail by way of illustration and examples for purposes of clarity of understanding, it is readily apparent to those of ordinary skill in the art in light of the teachings of this invention that certain changes and modifications, particularly with regard to specific exemplary components and to the specific ranges of the components of the formulations, may be made thereto without departing from the spirit and scope of protection afforded the invention described, and claimed, herein.

WHAT IS CLAIMED IS:

1. A shaving cream formulation comprising a cationic surfactant and a separate antiseptic component.

2. The shaving cream formulation of Claim 1, wherein said cationic surfactant is a quaternary ammonium compound.

3. The shaving cream formulation of Claim 2, wherein said cationic surfactant is selected from the group consisting of cetrimonium chloride, benzalkonium chloride, behenyltrimonium chloride, cetyltrimethylammonium chloride, behenyltrimethylammonium chloride, cetylpyridinium chloride, tetramethylammonium chloride, tetraethylammonium chloride, octyltrimethylammonium chloride, dodecyltrimethylammonium chloride, hexadecyltrimethylammonium chloride, octyldimethylbenzylammonium chloride, decyldimethylbenzylammonium chloride, stearyldimethylbenzylammonium chloride, didodecyldimethylammonium chloride, dioctadecyldimethylammonium chloride, tallowtrimethylammonium chloride, cocotrimethylammonium chloride, the corresponding hydroxides thereof, Quaternium-5, Quaternium-31 and Quaternium-18.

4. The shaving cream formulation of Claim 4, wherein said antiseptic component is selected from the group consisting of oil of *Melaleuca alternifolia* and oil *Lavandula* angustifolia.

5. The shaving cream formulation of Claim 1, further comprising one or more agents selected from the group consisting of biological additive, neutral surfactant, emulsifying agent, opacifying agent, moisturizer, humectant, emollient, film forming agent, chelating agent, skin conditioning agent, pH adjuster, preservative, antioxidant, coloring agent, viscosity enhancing agent and fragrance.

6. The sharing cream formulation of Claim 1, with the proviso that the formulation does not comprise an anionic surfactant.

7. The sharing cream formulation of Claim 1, wherein said cationic surfactant is present at about 5% to about 15%, by weight.

8. The sharing cream formulation of Claim 7, wherein said cationic surfactant is present at about 5% to about 10%, by weight.

9. Use of the a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin in preparing the skin and hair of a mammal for shaving.

10. Use of the a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin in preparing the skin and hair of a mammal afflicted with or likely to be afflicted with acne for shaving.

11. Use of the a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin in preparing the skin and hair of a mammal afflicted with or likely to be afflicted with eczema for shaving.

12. Use of the a shaving cream formulation comprising a cationic surfactant and a separate antiseptic component to the skin in preparing the skin and hair of a mammal afflicted with or likely to be afflicted with ingrown hairs (folliculitis) for shaving.

13. The use of Claim 9, 10, 11 or 12, wherein the mammal is a human male.

14. The use of Claim 9, 10, 11 or 12, wherein the mammal is a human female.

15. The use of Claim 9, 10, 11, 12 or 13, wherein the skin is facial skin.

16. The use of Claim 9, 10, 11 12, 13 or 14, wherein the skin is non-facial bodily skin.

17. The use of Claim 14, wherein the skin is leg skin.

18. The use of Claim 14, wherein the skin is underarm skin.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
WPI Data, EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 399 523 A (BALDAN EMILIO) 28 November 1990 (1990-11-28) page 3, line 20; claim 7	1-3,5,6, 9-18
X	ANONYMOUS: "Welcome to trishave solutions" INTERNET ARTICLE, 'Online! XP002190177 Retrieved from the Internet: <URL:http://www.trishave.com> 'retrieved on 2002-02-13! *tri-shave 3 in one;lady tri shave 3 in one; www.trishave.com/magazine.htm*	1-18

☐ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search	Date of mailing of the international search report
14 February 2002	07/03/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Boeker, R

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INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No
PCT/US 01/15259

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